HOKKAIDO UNIVERSITY

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A REVISION OF THE GENUS GONIOCTENA CHEVROLAT IN JAPAN (COLEOPTERA: CHRYSOMELIDAE)

By HARUO TAKIZAWA

Abstract

TAKIZAWA, H. 2007. A revision of the genus *Gonioctenia* Chevrolat in Japan (Coleoptera: Chrysomelidae). *Ins. matsum. n. s.* 63: 35–50.

Japanese species of the genus *Gonioctena* Chevrolat, 1837 were revised. A total of 18 species were recognized from Japan, including four new species: *G. hoki*, *G. katsuyai*, *G. simotuke* and *G. tatesinensis*. Key to species and figures of the habitus and male aedeagus were given for each species. Variation spectrum of the dorsal color pattern was given for 12 species.

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2a Body black with reddish brown elytra; sometimes elytra black with reddish marginal areas, or entirely black (Fig. 3); more convex, 4.5–5.5 mm in length; elytra with smooth and lustrous interstices; aedeagus as shown in Fig. 1b ..... *Gonioctena* (*Brachyphytodecta*) *rubripennis* Baly

2b Body black; pronotum, elytra and legs yellowish brown; pronotum with a pair of black spots and basally margined with black; elytra margined with black on suture; punctures dark brownish, so that punctate striae look like narrow black lines; sometimes with a pair of obscure longitudinal patches laterally before middle; or elytra largely black leaving yellowish brown area on apical half (Fig. 3); body convex dorsally, 4.5–5.5 mm in length; elytral interstices finely wrinkled; aedeagus long and slender as shown in Fig. 1a ..... *G*. (*B*.) *kidoi* Takizawa et Daccordi

3a Prothorax with setigerous pores on both anterior and posterior angles (Subgenus *Sinomela* Chen) 4

3b Prothorax with a setigerous pore on posterior angle (Subgenus *Gonioctena*) 6

4a Body reddish brown, 6.0–6.7 mm in length; pronotum strongly narrowed anteriorly, with the ratio of width at anterior angles to width at posterior angles below 0.6; pronotum with a pair of black spots; elytra with 6 pairs of blackish spots ..... *G*. (*Sinomela*) *nagaii* Nakane

4b Pronotum much weakly narrowed anteriorly, with the ratio of anterior/posterior width over 0.7; elytra with less than 6 pairs of blackish spots; sometimes black spots enlarged in various degrees 5

5a Body short oval, widest at middle of elytra, 5.5–6.0 mm in length; elytra usually with 5 pairs of black spots at most; these spots enlarged or disappeared in various degrees from entirely reddish brown to black as in Fig. 4 ; aedeagus weakly widened at apex as in Fig. 2h ..... *G*. (*S*.) *nigroplagiata* Baly

5b Body long oval, almost parallel-sided, widest behind humerus, 4.5–6.5 mm in length; pronotum with a pair of blackish spots; elytra with 5 pairs of blackish spots; aedeagus almost parallel-sided near apex as in Fig. 2i ..... *G*. (*S*.) *hikosana* Kimoto

6a Venter largely or entirely yellowish to reddish brown 7

6b Venter more or less blackish 8

7a Body reddish brown, 6.5–8.0 mm in length; pronotum with a pair of black spots near base; elytra with 5 pairs of black spots; suture black except for basal 1/4; sometimes black spots enlarged as in Fig. 3 (27–29); legs entirely yellowish to reddish brown; elytral interstices with a row of minute punctures; aedeagus as in Fig. 2a ..... *G*. (*G*.) *japonica* Chujo et Kimoto

7b Body light reddish brown, 7.5–8.0 mm in length; femora apically and tibiae basally blackish; elytral interstices covered densely with minute punctures; aedeagus complicate as in Fig. 1g ..... *G*. (*G*.) *kamiyai* Kimoto

8a Dorsum lustrous with combination of black head and pronotum, and entirely reddish brown elytra 9

8b Dorsum without above combination; pronotum not entirely black, at least with trace of reddish brown tinge near anterior margin; elytra with blackish spots, or at least trace of them in most cases 11

9a Tibiae and tarsi reddish brown; body rather narrow and elongate, 7.0–7.5 mm in length; male with antenna 2/3 as long as body; also see couplet 12 ..... *G*. (*G*.) *shibatai* Takizawa (in part)

9b Legs entirely black; male with antennae less than half the body length 10

10a Body larger, 6.0-7.5 mm in length; head finely punctate; head and pronotum with interstices smooth; aedeagus as in Fig. 1h ..... *G*. (*G*.) *morimotoi* Kimoto

10b Body smaller, 5.0-6.0 mm in length; head finely but densely punctate; head and pronotum with interstices somewhat matt; aedeagus as in Fig. 2d ..... *G*. (*G*.) *flavicornis flavicornis* (Suffrian)

11a Male with antennae distinctly longer than half the body length; coloration variable, with head always black 12

11b Male with antennae shorter, reaching just behind the humerus; head largely brownish, or at least with red brownish tinge medially 13

Introduction

The genus *Gonioctena* Chevrolat is widely distributed in the Holarctic and Oriental Regions. It is distinguished among Japanese genera of Chrysomelinae by the following characters: anterior coxal cavity open posteriorly; elytral epipleuron horizontal; tibiae angularly dilated at apex; third tarsal segment not bilobed; tarsal claws appendiculate.

Japanese species of the genus were first complehensively studied by Kimoto (1964). Kimoto (1994) revised the genus and reported 13 species belonging to three subgenera. Takizawa & Daccordi (1998) described one new species of the subgenus *Brachyphytodecta* from Japan. Takizawa (1976, 1989, 1994) also studied larval morphology of Japanese species and discussed phylogenic relationships among subgenera. Nine of 14 species occurring in Japan are known of larval stages and biology. Because of wide distribution and pronounced variations in color patterns, it is sometimes difficult to identify the species on female specimens, while male aedeagus is a good character for identifying species (Bechyne, 1947). By careful examination of Japanese species, I discovered four new species from Japan. These species are described, and key to species of the genus is given in this paper.

The holotypes will be deposited in the collection of the Laboratory of Systematic Entomology, Hokkaido University (SEHU), Sapporo and in the Kimoto Collection of Kitakyushu City Museum for Natural History and Human History (KCM), Kitakyushu. Abbreviations for other collections are: Y. Komiya's private collection (YK), Tokyo; K. Kido's private collection (KKi), Hukuoka; K. Kitsuki's private collection (KK), Tokyo; K. Suzuki's private collection (KS), Toyama; H. Takizawa's private collection (HT), Saitama; Y. Tomioka's private collection (YT), Tokyo; Tochigi Prefectural Museum (TPM), Totigi; S. Yoshimichi's private collection (SY), Isikawa. Some locality names in the original labels are changed according to the spelling system of the Ministry of Education, Japan.

Before going further I wish to express my sincere gratitude to Dr. T. Nakamura of Tochigi Prefectural Museum, Dr. M. Ôhara of Hokkaido University Museum, and Dr. K. Ueda of Kitakyushu City Museum, for the loan of specimens. To late Dr. Y. Komiya, Mrs. K. Kitsuki and Y. Tomioka in Tokyo, Dr. S. Ohmomo in Ibaraki, Dr. K. Suzuki of Toyama University, Mr. S. Tsuyuki in Kanagawa and to Mr. S. Yoshimichi in Isikawa for kindly offering valuable specimens.

Genus Gonioctena Chevrolat

Gonioctena Chevrolat, 1837, in Dejean, Cat. Col., ed. 3: 403 (type species: *Chrysomela viminalis* Linnaeus, 1758) – Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13: 277 – Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 138, 228, 301.

Phytodecta Kirby, 1837, Fauna Bor. Amer., 4: 213 (type species: *Chrysomela rufipes* DeGeer, 1775) – Chujo, 1958, Quart. J. Taiwan Museum, 11(1-2): 63.

Key to Japanese species of the Genus Gonioctena

1a Prothorax with setigerous pores on posterior or anterior angles 3
1b Prothorax lacking setigerous pores on both anterior and posterior angles (Subgenus *Brachyphytodecta* Bechyne) 2

12a Pronotum entirely black; elytra reddish with 5 pairs of well developed black spots; these spots with a tendency to enlarge as in Fig. 3, and sometimes elytra entirely black; aedeagus as shown in Fig. 2f ..... *G.* (*G.*) *springlovae* Bechyne

12b Pronotum reddish brown with a pair of obscure blackish spots, or with a large basal spot as in fig. 3; aedeagus as shown in Fig. 2c; see also couplet 9 ..... *G.* (*G.*) *shibatai* Takizawa (in part)

13a Pronotum and elytra with well-demarcated black spots 14

13b Pronotum and elytra with obscurely demarcated black spots, sometimes wholly reddish brown to blackish 17

14a Aedeagus with the apical process robust, distinctly widened to apex as in Fig. 1c; pronotum and elytra generally with smaller black spots as in Fig. 3 ..... *G.* (*G.*) *hiranoi* Takizawa

14b Aedeagus with the apical process slender, not widened to apex 15

15a Aedeagus with the apical process knob-shaped at apex in lateral view as in Fig. 1d .... *G.* (*G.*) *hoki* n. sp.

15b Aedeagus with the apical process rather parallel-sided in lateral view 16

16a Aedeagus almost parallel-sided, with the apical process short and wider in lateral view as in Fig.2b ..... *G.* (*G.*) *katsuyai* n. sp.

16b Aedeagus weakly widened to apex, with the apical process long and slender as in Fig. 2e .... *G.* (*G.*) *simotuke* n. sp.

17a Legs largely black 18

17b Legs reddish brown, sometimes with both femora and tibiae blackish at base 19

18a Aedeagus almost 1/3 as long as body, with shorter apical process as in Fig. 1f; coloration variable as in Fig. 3 ..... *G.* (*G.*) *honshuensis honshuensis* Nakane

18b Aedeagus almost 1/2 as long as body, with longer apical process as in Fig. 1e; coloration variable as in Fig. 3 ; see also couplet 20 ..... *G.* (*G.*) *honshuensis chujoi* Medvedev (in part)

19a Body rather flat and smaller, 4.5–5.2 mm in length; legs yellowish brown with contrasting dark tarsi; dorsum dark chocolate-brown; sometimes pronotum laterally and elytra marginally yellowish brown as in Fig. 4; male unknown ..... *G.* (*G.*) *tatesinensis* n. sp.

19b Body larger, 5.5–7 mm in length; legs dark reddish brown with dark tarsi; elytra reddish brown with obscure dark patches in most cases 20

20a Body larger, 6.0–7.0 mm in length; aedeagus slender with short apical process as in Fig. 1e ..... *G.* (*G.*) *honshuensis chujoi* Medvedev (in part)

20b Body smaller, 5.5–6.0 mm in length; aedeagus rather short and robust as in Fig. 2g; coloration variable as in Fig. 4 ..... *G.* (*G.*) *takahashii* Kimoto

Enumeration of species

Subgenus *Gonioctena* Chevrolat

Gonioctena (*Gonioctena*) *flavicornis flavicornis* (Suffrian) (Figs. 2d & 5)

Phytodecta flavicornis Suffrian, 1851, Linn. Ent. 5: 215.

Gonioctena flavicornis: Warchalowski, 2003, Chrysomelidae, p. 309 (N. and mountaineous Europe, E. Siberia).

Gonioctena flavicornis flavicornis: Medvedev, 1992, Fam. Chrysomelidae. In Opredelitel' nasekomyh dalnego Vostoka SSSR, 3 (2): 573, Nauka, St. Petersburg.

Gonioctena (*Gonioctena*) *sorbina*: Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 282.

Gonioctena (*Gonioctena*) *sibirica*: Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 230, 302 – Takizawa, 1994, ditto, vol. Larva, p. 452.

Host plants: *Populus maximowiczii* and *Salix* spp. (Salicaceae).

Distribution: Hokkaido; Russia Far East, Siberia, Mongolia, C. Europe.

Remarks. Kimoto (1994) recorded *G. sibirica* from Japan substituting its junior homonym, *G. sorbina* based on Medvedev (1982). The male aedeagus of *G. sibirica* given by Medvedev (1992) is clearly different from that of *G. sibirica sensu* Kimoto, and the latter agrees well with that of *G. flavicornis flavicornis* Suffrian by Medvedev. Medvedev cited distribution of *G. flavicornis* as Russia Far East, Siberia, Japan, Mongolia and C. Europe. Mikhailov & Hayashi (2000) recorded *G. flavicornis flavicornis* from Sakhalin. I also examined the specimens of Sakhalin [3 exs., Parkita, N. Sakhalin, 27.VI.2001 (HT)]. Warchalowski (2003) cited figure of the male aedeagus for *G. flavicornis*, which basically agrees with Medvedev (1992). Considering these, I treated here *G. sibirica sensu* Kimoto as *G. flavicornis* Suffrian.

Gonioctena (*Gonioctena*) *hiranoi* Takizawa
(Figs. 1c & 6)

Gonioctena hiranoi Takizawa, 1989, Akitsu, Kyoto, new ser., (109): 1 (Mt. Soun-zan, Kanagawa; type in SEHU) – Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 301 – Takizawa, 1994, ditto, vol. Larva, p. 450.

Host plants: *Alnus* spp. and *Fagus crenata* (Betulaceae).

Distribution: Honsyu.

Specimens from the following Prefectures were examined: Aomori, Hukusima, Totigi, Gunma, Tokyo, Kanagawa, Yamanasi, Sizuoka and Nagano.

Gonioctena (*Gonioctena*) *honshuensis chujoi* Medvedev
(Figs. 1e & 8)

Gonioctena chujoi Medvedev, 1966, Forest Ent.- Fauna Kuril, Kamch. & Magda., p.41 (Kuriles).

Gonioctena sibirica: Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 281 (in part).

Gonioctena honshuensis: Kimoto, 1989, Check-list of Coleoptera of Japan, Fam. Chrysomelidae, Jpn. Soc. Coleopt., 31: 1-13; 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 301 (in part).

Gonioctena honshuensis honshuensis: Takizawa, 1994, Leaf beetles of Japan, vol. Larva, p. 450.

Host plants: *Salix* spp. (Salicaceae).

Distribution: S. Kuriles (Kunashir, Iturup), Hokkaido.

Remarks. Although Kimoto (1989) treated this species as a synonym of *G. honshuensis* Nakane, the shape and size of male aedeagus are different enough to recognize two different subspecies as shown in the key. The status of two other subspecies of *chujoi* described from Sakhalin and Russia Far East by Medvedev (1968): *G. chujoi ochotense* and *G. chujoi sachalinensis* need to be revised.

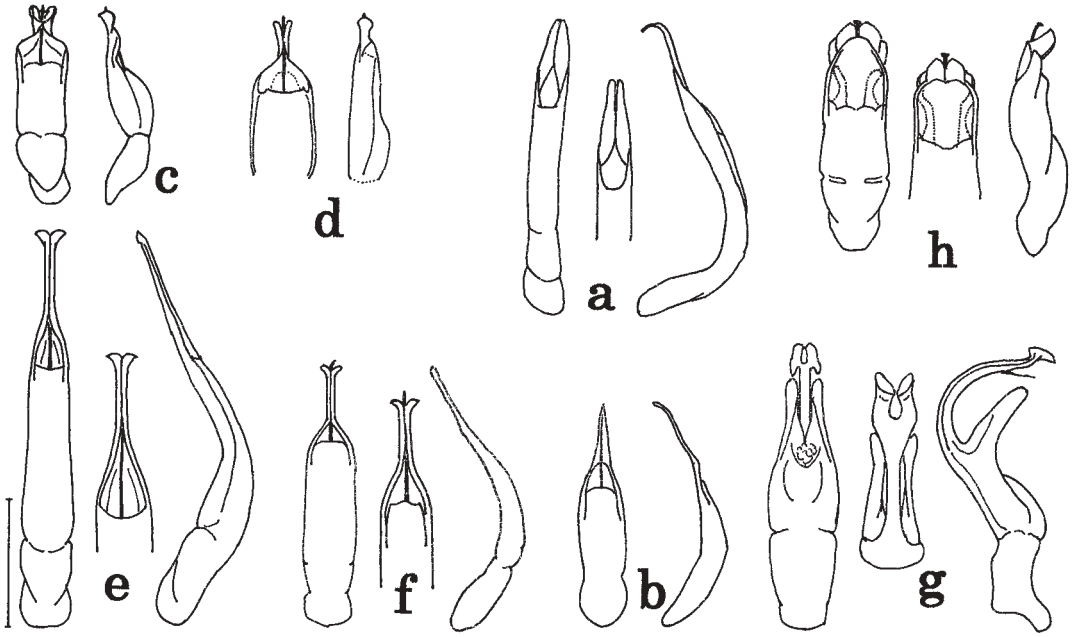


Fig. 1 Aedeagus (left: dorsal view, middle: apical portion, right: lateral view) of: a, *Gonioctena* (*Brachyphytodecta*) *kidoi* (from Mt. Kurodake, Oita); b, *G*. (*B*.) *rubripennis* (from Mt. Takao-san, Tokyo); c, *G*. (*Gonioctena*) *hiranoi* (from Mt. Asitaka-yama, Sizuoka); d, *G*. (*G*.) *hoki* n. sp. (holotype); e, *G*. (*G*.) *honshuensis chujoi* (from Nukabira, Hokkaido); f, *G*. (*G*.) *honshuensis honshuensis* (from Mt. Senzyo-dake, Nagano); g, *G*. (*G*.) *kamiyai* (middle: ventral view; from Hikawa-rindo, Yamanasi); h, *G*. (*G*.) *morimotoi* (from Mt. Ontake, Nagano).

Gonioctena (*Gonioctena*) *honshuensis honshuensis* Nakane
(Figs. 1f & 9)

Gonioctena honshuensis Nakane, 1963, Fragm. Col., ed. Nakane, (5): 19 (Simasima, Nagano; holotype in Nakane Coll. in SEHU) – Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 301 (in part) – Takizawa, 1994, ditto, vol. Larva, p. 451.

Gonioctena sibirica: Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 281 (in part).

Host plants: *Salix* spp. (Salicaceae)

Distribution: Honsyu and Sikoku. Specimens from the following Prefectures were examined: Aomori, Akita, Iwate, Hukusima, Totigi, Gunma, Yamanasi, Niigata, Nagano and Tokusima.

Gonioctena (*Gonioctena*) *japonica* Chûjô et Kimoto
(Figs. 2a & 10)

Gonioctena japonica Chûjô et Kimoto, 1960, Niponius, ed. M. Chûjô, 1(4): 5, figs. (Asyoro in Hokkaido; holotype probably in Chûjô Collection, Tokyo) – Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 281 (in part); 1994, Leaf beetles of Japan, vol. Adult, p. 138, 229, 302 – Takizawa, 1994, ditto, vol. Larva, p. 451.

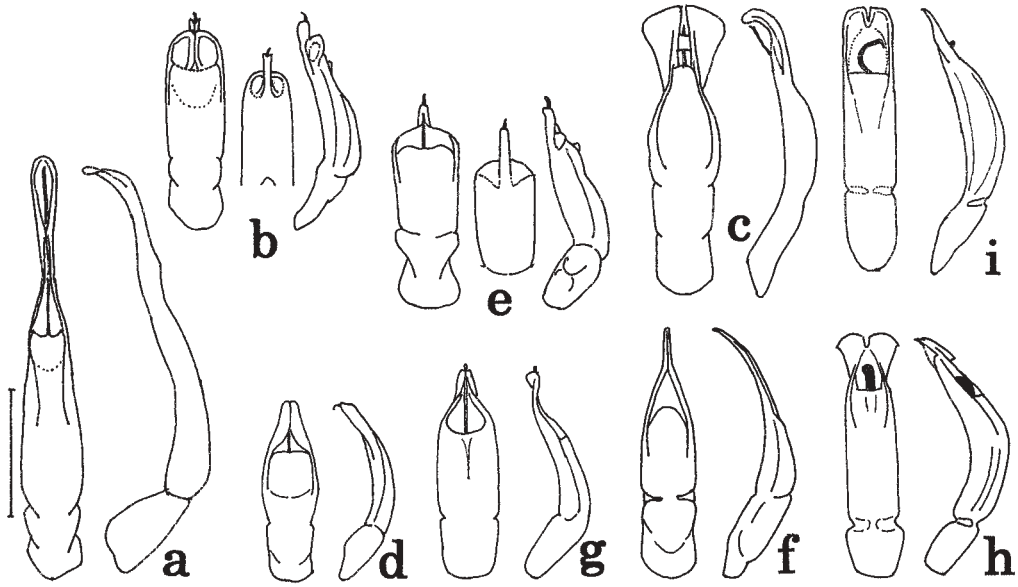


Fig. 2 Aedeagus (left: dorsal view, middle: apical portion, right: lateral view) of: a, *Gonioctena* (*Gonioctena*) *japonica* (from Sirakaba-ko, Nagano); b, *G.* (*G.*) *katsuyai* n. sp. (holotype); c, *G.* (*G.*) *shibatai* (holotype from Nukumi-daira, Hukusima); d, *G.* (*G.*) *flavicornis flavicornis* (from Nukabira, Hokkaido); e, *G.* (*G.*) *simotuke* n. sp. (holotype); f, *G.* (*G.*) *springlovae* (from Sikotu-ko, Hokkaido); g, *G.* (*G.*) *takahashii* (from Mugikusa-toge, Nagano); h, *G.* (*Sinomela*) *nigroplagiata* (from Hatano, Kanagawa); i, *G.* (*S.*) *hikosana* (paratype from Mt. Hiko-san, Hukuoka).

Host plants: *Alnus hirsuta*, *A. japonica* and *A. maximowiczii*.

Distribution: S. Kuriles (Kunashir, Iturup), Hokkaido, Honsyu, Sikoku, Kyusyu.

Specimens from the following Prefectures were examined: Aomori, Iwate, Miyagi, Hukusima, Totigi, Gunma, Tokyo, Kanagawa, Yamanasi, Nagano, Niigata, Gihu, Toyama, Hukui, Isikawa and Oita.

Remarks. This species is common and is well characterized by reddish brown body with black spots on the pronotum and elytra. The figures of male aedeagus given in the original description is incorrect, and the figures were surely based on *G. honshuensis chujoi*. Likewise the figures given in Kimoto (1963) are on *G. katsuyai* n. sp.

Gonioctena (*Gonioctena*) *kamiyai* Kimoto
(Figs. 1g & 11)

Gonioctena kamiyai Kimoto, 1964, Fragm. Col., ed. Nakane, (4): 15 (Masutomi in Yamanasi; holotype in KU) – Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 302.

Host plants: *Betula* spp. (Fagaceae) and *Salix* spp. (Salicaceae).

Distribution: Honsyu; Russia Far East.

Specimens from the following Prefectures were examined: Hukusima, Totigi, Gunma, Yamanasi and Nagano.

Gonioctena (*Gonioctena*) *morimotoi* Kimoto
(Figs. 1h & 13)

Gonioctena morimotoi Kimoto, 1963, Fragm. Col., ed. Nakane, (4): 15 (Masutomi, Yamanasi; holotype in KU) - Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 281; 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 302 - Takizawa, 1994, ditto, vol. Larva, p. 451.

Host plants: *Prunus buergeriana*, *P. grayana* and *Sorbus commixta*.

Distribution: Honsyu.

Specimens from the following Prefectures were examined: Hukusima, Totigi, Gunma, Yamanasi, Sizuoka, Nagano, Niigata, Hukui and Nara.

Gonioctena (*Gonioctena*) *shibatai* Takizawa
(Figs. 2c & 14)

Gonioctena shibatai Takizawa, 1982, Ent. Rev. Japan, 37: 57 (Nukumidaira, Yamagata Pref.; holotype in SEHU) - Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 302.

Host plants: *Populus maximowiczii* (Salicaceae).

Distribution: Hokkaido, Honsyu.

Specimens from the following Prefectures were examined: Hokkaido, Yamagata, Hukusima and Yamanasi.

Remarks. This species was described on a single specimen from Yamagata Pref., and has been unrecorded over 20 years. Mr. K. Kitsuki collected some larvae feeding on leaves of *Populus maximowiczii* at Kanayama, near Masutomi, Yamanasi Pref. in late May, 2002 and reared a few adults of this species. A lot of adults were collected on middle July at the same place. This species is here first recorded from Hokkaido: 1 ex., Sounkyo, Hokkaido, 21.VII.1950 (Kimoto Collection in KCM); 1 ex., Eorosi, Higasikawa-mati, Kamikawa, 30.V.1993, T. Nishida leg. (YK).

Gonioctena (*Gonioctena*) *springlovae* (Bechyne)
(Figs. 2f & 16)

Phytodecta springlovae Bechyne, 1947, Acta Mus. Nat. Prag., 3B: 115-116, figs. (Kioto).

Phytodecta springlovae ab. *grandualis* Bechyne, 1947, ibid., p. 116, fig. (Kioto).

Phytodecta gracilicornis?: Jacoby, 1885, Proc. Zool. Soc. London, 1885: 210 (Japan).

Gonioctena (*Gonioctena*) *springlovae*: Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 282; 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 302 – Takizawa, 1994, ditto, vol. Larva, p. 451.

Host plants: *Populus maximowiczii* and *Salix* spp. (Salicaceae).

Distribution: Hokkaido.

Remarks. This species was synonymized with *G. affinis* Gyllenhall by Medvedev (1992). Here I retain to use the name *springlovae* for the population of Hokkaido, on the basis of the following combination of characters: body larger, with the pronotum always black, and aedeagus much strongly curved down at apex, in comparison with specimens of *G. affinis* from Siberia.

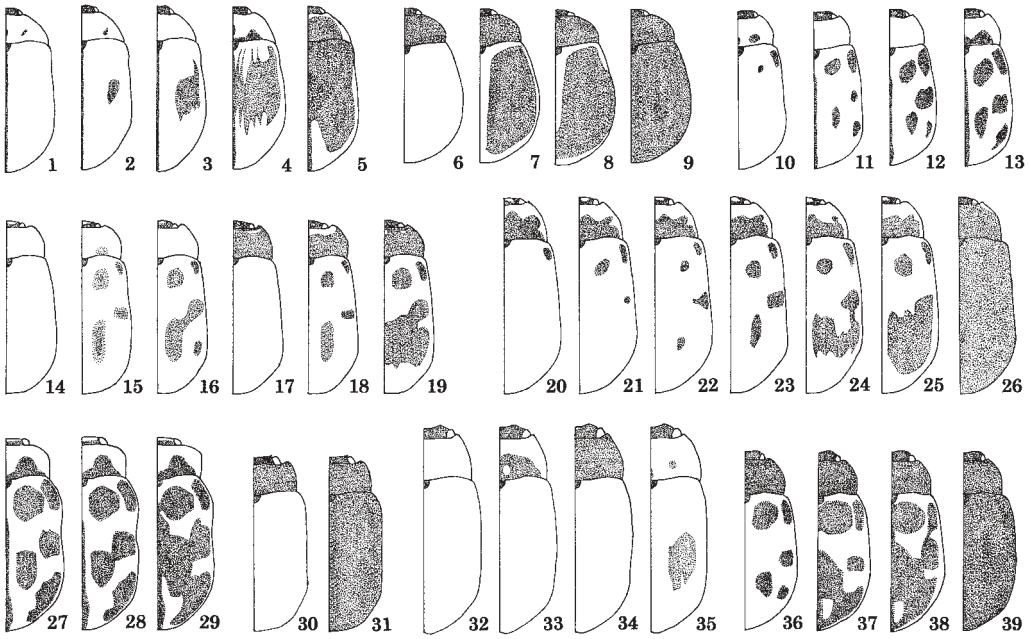


Fig. 3 Variations in dorsal patterns (1): 1–5: *Gonioctena kidoi*; 6–9: *G. rubripennis*; 10–13: *G. hiranoi*; 14–19: *G. honshuensis chujoi*; 20–26: *G. honshuensis honshuensis*; 27–29: *G. japonica*; 30–31: *G. morimotoi*; 32–35: *G. shibatai*: 36–39: *G. springlovae*.

Gonioctena (*Gonioctena*) *takahashii* Kimoto
(Figs. 2g & 17)

Gonioctena takahashii Kimoto, 1963, Fragm. Col., ed. Nakane, (4): 15 (Nikko, Totigi; holotype in KU) – Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 282; 1994, Leaf beetles of Japan, vol. Adult, p. 139, 229, 302.

Host plants: *Betula platyphoria* and *Betula* spp. (Fagaceae).

Distribution: Honsyu, Sikoku.

Specimens from the following Prefectures were examined: Aomori, Iwate, Hukusima, Totigi, Gunma, Tokyo, Yamanasi, Sizuoka, Nagano, Gihu, Isikawa and Tokusima.

Subgenus *Brachyphytodecta* Bechyne

Brachyphytodecta Bechyne, 1947, Acta Mus. Nat. Prag., 3B (3): 101 (type species: *Spartophila fulva* Motschulsky, 1860).

Gonioctena (*Brachyphytodecta*) *kidoi* Takizawa et Daccordi
(Figs. 1a & 19)

Gonioctena (*Brachyphytodecta*) *kidoi* Takizawa et Daccordi, 1998, Entomol. Sci. 1: 105 (Mt. Kuro-dake, Oita; holotype in SEHU).

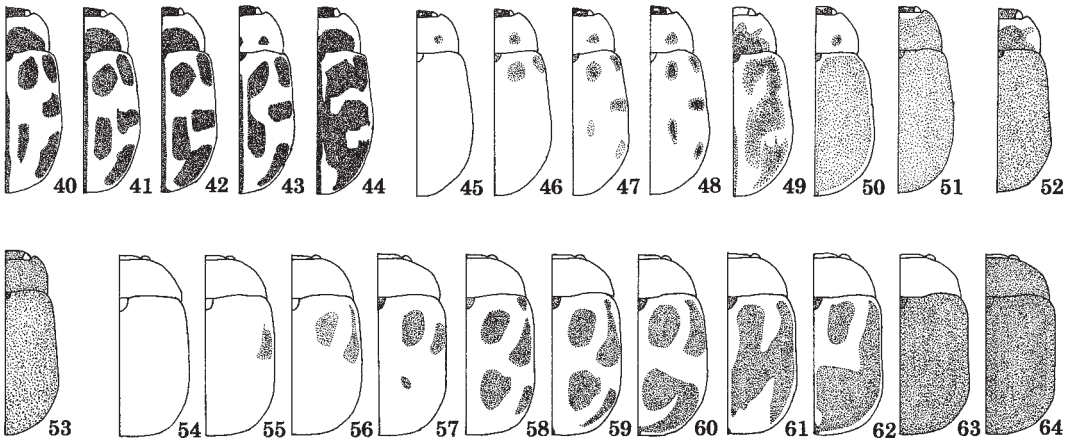


Fig. 4 Variations in dorsal patterns (2): 40–44: *Gonioctena simotuke*, n. sp.; 45–51: *G. takahashii*; 52–53: *G. tatesinensis*, n. sp.; 54–64: *G. nigroplagiata*.

Host plants: *Cladrastis sikokiana* (Leguminosae).
Distribution: Honsyu, Kyusyu.
Specimens from Tokyo and Oita Pref. were examined.

Gonioctena (*Brachyphytodecta*) *rubripennis* Baly
(Figs. 1b & 20)

Gonioctena rubripennis Baly, 1862, Ann. Mag. Nat. Hist., (3), 10: 28 (Japan) – Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 280; 1994, Leaf beetles of Japan, vol. Adult, p. 138, 228, 302 – Takizawa, 1994, ditto, vol. Larva, p. 452.
Phytodecta rubripennis var. *tenebrosa* Weise, 1910, Verh. Naturf. Ver. Brunn, 48: 37 (Japan).
Phytodecta rubripennis var. *plagipennis* Achard, 1924, Casopsis, 21: 33 (Japan: Yokohama).

Host plants: *Robinia pseudoacacia* and *Wisteria floribunda*.
Distribution: Hokkaido, Honsyu, Sikoku, Kyusyu.
Specimens from the following Prefectures were examined: Hokkaido, Aomori, Iwate, Miyagi, Yamagata, Hukusima, Totigi, Gunma, Ibaraki, Tiba, Saitama, Tokyo, Kanagawa, Sizuoka, Yamanasi, Nagano, Niigata, Isikawa, Mie, Kyoto, Hyogo, Okayama, Hirosima, Kagawa, Oita, Hukuoka, Nagasaki, Miyazaki and Kagosima.

Subgenus *Sinomela* Chen

Sinomela Chen, 1935, Chinese J. Zool., 1: 126 (type-species: *Phytodecta aeneipennis* Baly, 1862) (Subgenus).

Gonioctena (*Sinomela*) *hikosana* Kimoto
(Figs. 2i & 21)

Gonioctena (*Sinomela*) *hikosana* Kimoto, 1974, Kontyu, Tokyo, 42: 144 (Japan: Hikosan; holotype in KU) – Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 230, 303.

Host plants: *Carpinus tschonoskii* (Fagaceae) (after Kido, 2002).
Distribution: Kyushu (Hukuoka and Oita).

Gonioctena (*Sinomela*) *nagaii* Nakane
(Fig. 22)

Gonioctena nagaii Nakane, 1963, Sci. Report, Kyoto Pref. Univ. (Nat. Sci. & Lib. Arts), 3 (5): 12 (Okinoerabu Is., Ryukyu Isls.; types in Nakane collection in SEHU).

Gonioctena (*Sinomela*) *nagaii*: Kimoto, 1994, Leaf beetles of Japan, vol. Adult, p. 139, 230, 303.

Host plants: unknown.
Distribution: Ryukyus (Okinoerabu Is.).

Remarks. There are four types of this species in the Nakane Collection of Hokkaido University (SEHU). Though Nakane defined the holotype and three paratypes in the original description, he didn't specify the holotype specimen.

Gonioctena (*Sinomela*) *nigroplagiata* Baly
(Figs. 2h & 23)

Gonioctena nigroplagiata Baly, 1862, Ann. Mag. Nat. Hist., (3) 10: 28 (Japan) - Kimoto, 1964, J. Fac. Agr., Kyushu Univ., 13 (2): 280; 1994, Leaf beetles of Japan, vol. Adult, p. 139, 230, 303 – Takizawa, 1994, ditto, vol. Larva, p. 452.

Phytodecta robusta Jacoby, 1885, Proc. Zool. Soc. London, 1885: 209 (Japan).

Host plants: *Celtis chinense* (Ulmaceae).
Distribution: Honsyu; E. China.

Specimens from the following Prefectures were examined: Totigi, Ibaraki, Tiba, Tokyo, Kanagawa, Sizuoka, Yamanasi, Isikawa and Okayama.

Descriptions of new species

Gonioctena (*Gonioctena*) *simotuke* n. sp.
(Fig. 15)

Male. Body oblong-oval, almost subparallel-sided at middle, 4.5–6.5 mm in length; shining reddish brown with black maculae on the dorsum; venter largely blackish, with the 5th sternite largely reddish brown; head blackish brown with two small reddish brown spots on the vertex; antennae blackish on the 4 apical segments; pronotum with a large 3-peaked black macula basally; scutellum black; elytra with suture and 5 pairs of black maculae; femora black; tibiae basally black, and blackish brown apically; tarsi blackish brown.

Vertex and frons densely covered with distinct punctures; interstices uneven; antenna reaching basal margin of pronotum, with 5 apical segments widened. Pronotum transverse, clearly twice as wide as long at saggital line; broadly and deeply emarginate at anterior margin, broadly produced posteriorly at basal margin; gently widened from base to anterior 1/3, thence roundly and strongly narrowed to anterior angle on the lateral margins; anterior angle round without seta-bearing pore; posterior angle obtuse

with a seta-bearing pore; disc evenly convex from side to side, densely covered with large punctures especially on latero-basal area, with smaller punctures on median area; interspaces covered with fine punctures. Scutellum ovate and smooth. Elytra with 11 regular rows of large punctures, interstices finely punctate and weakly reticulate; aedeagus with the apical median process slender and straight (Fig. 2e), not widened apically as in *G. hiranoi* (Fig. 1c).

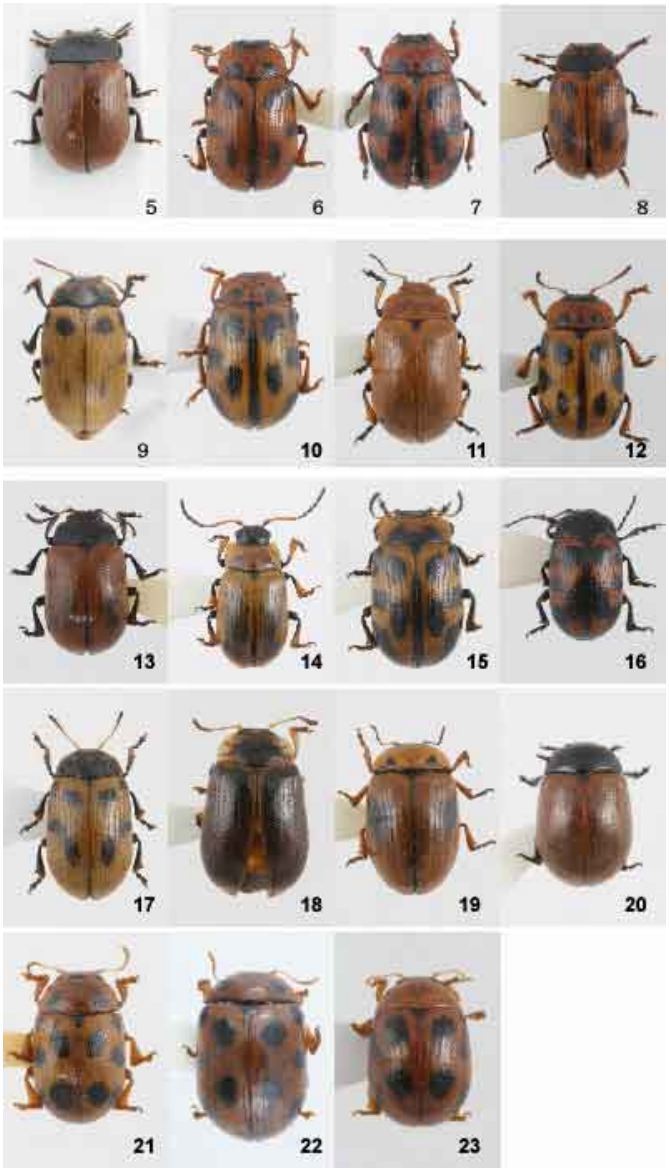
Female: body larger, 6.0–7.0 mm in length.

Remarks. This new species is very similar to *G. hiranoi* Takizawa, *G. hoki* and *G. katsuyai* n. spp. in appearance. Besides the shape of the male aedeagus, this new species is characterized by its largely blackish femora and elytra generally with larger maculae than *G. hiranoi*. Except for the shape of male aedeagus, characters show a considerable range of variations so that it is sometimes difficult to determine female specimens. On this reason, females were excluded from the type series.

This species was found on leaves of *Alnus* spp. and *Betula grossa* (K. Suzuki; pers. comm.) in mountaneous area of Tohoku to Tyubu Districts of Honsyu Is. This range of distribution almost coincides with that of *G. hiranoi*, which also feeds on *Alnus* spp. and *Fagus crenata*. Though nothing is known of its biology, larvae collected at Kawamata in Totigi Pref. on June 5th, 1999, emerged on June 26th. One female specimen was collected from a soil sample in November at Siobara in Totigi Pref.

The specific name is derived from the old country name “Simotuke” for the Totigi Pref., where the holotype was collected.

Holotype: male, Northern slope of Omaru onsen, ca. 1400m, Yumoto, Nasu, Totigi, 16.VII.2005, H. Takizawa leg. (on *Alnus* sp.) (SEHU). Paratypes: Aomori – 1 ♂ , Tuta onsen, Minami-hakkoda, Towada-si, 10.VI.2004, Y. Tomioka leg. (YT). Hukusima – 1 ♂ , Mt. Arakai, 28.VII.1997, H. Takizawa leg. (HT); 1 ♂ , Nanairi, Minamiaizu, 20.V.1983, K. Emoto leg. (YK); 1 ♂ , Kasi onsen, Nasu, 5.VI.1992, S. Tsuyuki leg. (HT); 1 ♂ , Masuzawa, Tateiwa-mura, 25.V.1995, S. Ohmomo leg. (HT). Totigi – 1 ♂ , Ginzan-daira, Mt. Kosin-san, Asio-mati, 15.V.1986, K. Sato leg. (TPM); 1 ♂ , Hyotan-toge, Enna rindo, Nasu, 28.VII.1996, H. Takizawa leg. (HT); 3 ♂ , Kawamata, Kuriyama, 5.VI.1999, H. Takizawa leg. (HT); 1 ♂ , ditto, 19.V.1985, Y. Takahashi leg. (TPM); 1 ♂ , Mikawa-zawa, Yunisikawa, Kuriyama, 22.VI.1991, K. Sato leg. (TPM); 1 ♂ , Mitosi-zawa, Miyori, Totigi, 15.V.1999, H. Takizawa leg. (HT); 1 ♂ , Nisi-arakawa, Sioya-mati, 19.V.1995, S. Ohmomo leg. (TPM); 2 ♂ , Okawa, Kuroiso, 22.VI.1979, M. Inaizumi & M. Abe leg. (TPM); 1 ♂ , Okawa rindo, Kuroiso, 29.V.1994, H. Okawa leg. (TPM); 1 ♂ , Tasiroyama rindo, Kuriyama, 1.VI.1998, K. Sato leg. (TPM); 1 ♂ , ditto, 7.V.1998, K. Sato leg. (TPM). Gunma - 2 ♂ , Kawahuru onsen, 30.V-2.VI.1999, H. Takizawa leg. (HT). Niigata – 1 ♂ , Kiyotu-gawa, Yuzawa, 27-29.V.2002, K. Okada leg. (HT); 10 ♂ , Etigo-Yuzawa, 11.VI.2006, (feeding on *Alnus pendula*), H. Takizawa leg. (HT). Toyama - 1 ♂ , Nagato Rindo, Oyama-mati, Kaminikawa-gun, 17.VI.1994, K. Suzuki leg. (KS); 2 ♂ , Babazima, Kamiiti-mati, Nakanikawa-gun, 10.VI.2004, K. Suzuki & Y. Matsumoto leg. (KS, HT). Sizuoka - 1 ♂ , Yazawagawa, 12.VII.1994 (HT). Nagano - 1 ♂ , Abo-toge, Sirahone onsen, 31.VII.1993, S. Tsuyuki leg. (HT); 1 ♂ , Azusayama, 10.VI.1983, K. Masumoto leg. (YK); 1 ♂ , Itinose, Siga-kogen, 18.VI.1995, S. Tsuyuki leg. (HT); 1 ♂ , Nagawa-mura, Minamiazumi, 8.VIII.1996, K. Iijima leg. (HT). Females examined: Hukusima – 1 ♀ , Mt. Iide-san, 12-13.VI.1976, H. Takziawa leg. (HT); 1 ♀ , Yasugamori rindo betw. Kuriyama-mura & Tateiwa-mura, 3.VI.2002, S. Tsuyuki leg. (HT). Totigi - 1 ♀ , Dorobu, 19.V.1985, K. Emoto leg. (YK); 1 ♀ , Kaniyu, Okukinu, 18.VII.1969, M. Inaizumi leg. (TPM); 2 ♀ , Kawamata, Kuriyama, 5.VI.1999, emerged on 26.VI.1999, H. Takizawa leg. (HT); 1 ♀ , ditto, 17.VII.1985, T. Imura leg. (TPM); 1 ♀ ,



Figs 5–23 Habitus of *Gonioctena* spp. in Japan. 5, *Gonioctena flavicornis flavicornis* (from Nukabira, Hokkaido); 6, *G. hiranoi* (from Masutomi, Yamanasi); 7, *G. hoki* n. sp. (from Nikko, Totigi); 8, *G. honshuensis chujoi* (from Mt. Daisetu-san, Hokkaido); 9, *G. honshuensis honshuensis* (from Mt. Yatugatake, Nagano); 10, *G. japonica* (from Yunisikawa, Totigi); 11, *G. kamiyai* (from Hikawa-rindo, Yamanasi); 12, *G. katsuyai* n. sp. (holotype); 13, *G. morimotoi* (from Mt. Ontake, Nagano); 14, *G. shibatai* (from Kanayama-daira, Yamanasi); 15, *G. simotuke* n. sp. (holotype); 16, *G. springlovae* (from Mt. Soranuma-dake, Sapporo); 17, *G. takahashii* (from Mt. Taisyaku-san, Hukusima); 18, *G. tatesinensis* n. sp. (holotype); 19, *G. kidoi* (from Mt. Kuro-dake, Hukuoka); 20, *G. rubripennis* (from Atuma-dam, Hokkaido); 21, *G. hikosana* (from Mt. Kuro-dake, Hukuoka); 22, *G. nagaii* (syntype from Is. Okinoerabu); 23, *G. nigroplagiata* (from Ome, Tokyo).

Kirihuri, Nikko, 1.VI.1997, H. Takizawa leg. (HT); 2 ♀ , Mt. Kosin-zan, Asio-mati, 19.V.1985, H. Okawa & K. Kusano leg. (TPM); 1 ♀ , ditto, 18.VI.1988, H. Okawa leg. (TPM); 1 ♀ , Kotoku, Nikko, 20.VI.1985, K. Niimi leg. (TPM); 1 ♀ , Mitosi-zawa, Miyori, 15.V.1999, H. Takizawa leg. (HT); 1 ♀ , Mt. Nasu-dake, Nasu-mati, 8.VII.1996, R. Sonobe leg. (TPM); 1 ♀ , Nikko-zawa, 23.VI.1991, H. Takizawa leg. (HT); 1 ♀ , Okawa, Kuroiso, 17.VII.1979, S. Takahashi leg. (TPM); 1 ♀ , Okawa rindo, Kuroiso, 29.V.1994, H. Okawa leg. (TPM); 1 ♀ , Onuma, Siobara, 13.XI.1994, Totigi Dozyo Tyosa-ken leg. (TPM); 1 ♀ , Sanno rindo, 27.VII.1980, S. Nitta leg. (TPM); 1 ♀ , Mt. Sukai-zan, 4-5.VII.1971, H. Takizawa leg. (HT); 1 ♀ , Tasiroyama rindo, Kuriyama, 22.V.1998, K. Sato leg. (TPM); 1 ♀ , Mt. Tyausu, Nasu, 18.VIII.1996, H. Takizawa leg. (HT); 1 ♀ , Yunisikawa, Kuriyama, 30.V.-2.VI.2005, K. Okada leg. (HT); 1 ♀ , ditto, 17.VII.1980, S. Takahashi leg. (TPM). Gunma – 1 ♀ , Mt. Hotaka, 28.VII.2005, T. Mizusawa leg. (HT); 1 ♀ , Kawahuru-onsen, Nakanozyo, 1.VI.1999, H. Takizawa leg. (HT); 2 ♀ , Marunuma, Katasina-mura, 3.VII.1988, Y. Komiya leg. (YK); 1 ♀ , Tanbara-situgen, Numata-si, 18.VI.2003, Y. Komiya leg. (YK). Niigata – 5 ♀ , Etigo-Yuzawa, 11.VI.2006, H. Takizawa leg. (HT). Toyama – 1 ♀ , Arimine, Kaminikawa-gun, 5.VI.2004, (feeding on *Betula grossa*), K. Suzuki leg. (KS); 1 ♀ , Arimine (Okuhirodani), Toyama-si, 19.VI.2005, (feeding on *Alnus crispa*), K. Suzuki & Y. Matsumura leg. (KS); 1 ♀ , Babazima, Nakanikawa-gun, 2.VI.2004, (feeding on *Alnus pendula*), K. Suzuki leg. (KS). Isikawa – 1 ♀ , Zinnosuke – Kurobokoiwa, Mt. Hakusan, 11.VIII.2005, S. Yoshimichi leg. (SY). Yamanasi – 1 ♀ , Hikawa rindo, 1400m, Daibosatu, 19.V.1981, Y. Nakamura leg. (KK); 1 ♀ , Huzi rindo, Huzi, 12.VI.2004, M. Takeda leg. (HT); 1 ♀ , Masutomi, 24–25.V.1968, H. Takizawa leg. (HT); 1 ♀ , Narago rindo, Otuki, 21.VII.1997, K. Emoto leg. (YK); 1 ♀ , Mt. Obina, Kohu, 27.V.1986, H. Akiyama leg. (YK). Sizuoka – 1 ♀ , Yazawa-gawa, 12.VII.1994 (HT). Nagano – 1 ♀ , Hakkai-san, Mt. Ontake, 25–26.VII.1987, S. Tsuyuki leg. (HT); 1 ♀ , Siozi-daira, Ina, Central Alps, 10.VIII.1992, S. Tsuyuki leg. (HT).

Gonioctena (*Gonioctena*) *katsuyai* n. sp.
(Fig. 12)

Male. Body 6mm in length; general shape and coloration as in *G. simotuke* n. sp., with 5 pairs of black maculae and sutural stripe on elytra; femora and tarsi basally blackish; aedeagus with apical median process shorter, and with a pair of transluscent patches at the base of process (Fig. 2b).

Remarks. This new species is closely similar to *G. simotuke* n. sp. and *G. hiranoi* Takizawa, and is distinguished from *G. simotuke* n. sp. by the shape of male aedeagus. From *G. hiranoi*, this is distinguished by the shape of male aedeagus and blackish femora. This species is, so far, known only from mountains in northern Kyusyu. Nothing is known of its biology. The specific name is dedicated to Mr. Katsuya Kido, who collected this interesting species and reported it as undetermined species of *Gonioctena* in 2002.

Holotype. Male, Mt. Inugatake, Hukuoka, 27.V.1979, K. Kido leg. (SEHU). Paratypes: 1 ♂ , Mt. Kuro-dake, Oita, 11.VI.1988, K. Kido leg. (HT). Females: 1 ♀ , Mt. Kuzyu, 5.V.1967, T. Kocha leg. (HT); 1 ♀ , Mt. Kuzyu, Oita, 10.V.1959, Y. Miyatake leg. (KCM); 3 ♀ , Mt. Kuro-dake, Oita, 16.VII.1995, 21.VI.1992, K. Kido leg. (HT & KKi).

Gonioctena (*Gonioctena*) *hoki* n. sp.
(Fig. 7)

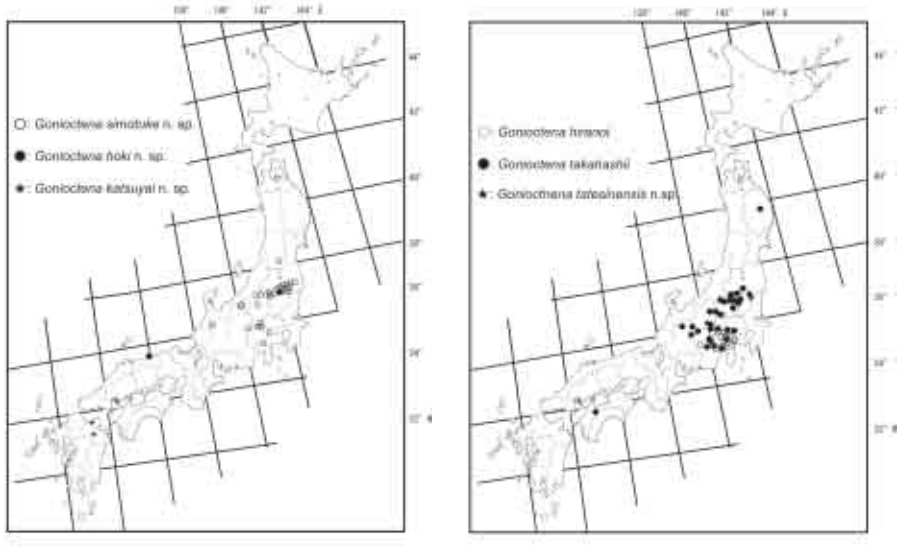


Fig. 24 Distribution of *hiranoi*-complex in Japan. Left: ★ *G. katsuyai*, n. sp.; ○ *G. simotuke*, n. sp.; ● *G. hoki*, n. sp. Right: ★ *G. tatesinensis*, n. sp.; ○ *G. hiranoi* ; ● *G. takahashii*.

Male. Body 6.5 mm in length; general shape and coloration as in *G. simotuke*, n. sp. with 5 pairs of black maculae and sutural stripe on elytra; femora and tibia basally black; aedeagus with apical process knob-shaped in lateral view (Fig. 1d).

Remarks. This new species is also very close to *G. hiranoi*, *G. simotuke* n. sp. and *G. katsuyasi* n. sp. The difference between them lies in the shape of male aedeagus as shown in the key. Judging from the shape of male aedeagus, these 4 species and *G. takahashii* make a close group. This new species is known from two different mountain areas, one from Mt. Daisen in west Honsyu, and the other from Nikko in north Honsyu. In Nikko, this species seems sympatric with *G. simotuke* n. sp. and possibly with *G. hiranoi*, as shown in Fig. 24. The specific name is derived from old country name "Hoki", where the holotype was collected.

Holotype: Male, Mt. Hoki Daisen, Tottori, 2.VI.1955, S. Kimoto leg. (KCM). Paratypes: 1 ♂, Nikko, Totigi, 12.VII.1956, M. Takahashi leg. (KCM). Female: 1 ♀, Mt. Daisen, Tottori, 2.VI.1985, M. Sawai leg. (YK).

Gonioctena tatesinensis n. sp.
(Fig. 18)

Female. Body rather flat and small, 4.5–5.5 mm in length; lustrous chocolate-brown, with pronotum laterally, elytra with 10th interstice and epipleuron yellowish brown; elytral suture and basal margin more or less light brownish; 2–5th abdominal sternites partly yellowish brown; antennae yellowish brown with 4 apical segments dark brownish; legs yellowish brown with somewhat infuscate femora.

Head sparsely punctate on frons, and densely so on vertex; antennae reaching humerus. Pronotum transverse, densely covered with large punctures on lateral area; on median area sparsely punctate with interspaces punctulate. Elytron rather flat in lateral view; punctures in 11 regular rows large and distinct; interstices finely punctulate.

Remarks. This new species somewhat resembles to the dark form of *G. takahashii* (Fig.4) but is clearly distinguished from the latter by much smaller body with longer antennae; *G. takahashii* has antennae reaching basal margin of pronotum. This species seems rare and so far is represented by 2 female specimens. Nothing is known of its biology. The specific name is derived from the type locality, Mt. Tatesina-yama (2530m asl.) in Nagano Pref.

Holotype. Female, Mt. Tatesina, Nagano, 11.VIII.1983, Y. Hirano leg. (SEHU). Paratype: 1 ♀, Mt. Nasu-dake, Nasu-mati, Totigi, 25.VII.1993, K. Kusama leg. (TPM).

References

Bechyne, J., 1947. Additamenta ad cognitinem specierum generis *Phytodecta* Kirby. Acta mus. Nat. Prag., 3B (3): 89–159, 5pls.

Kido, K., 2002. [Three rare chrysomelid species in Hukuoka Pref.], Kita-kyushu no Kontyu, 49 (1): 22 (in Japanese).

Kimoto, S., 1964. The Chrysomelidae of Japan and the Ryukyu Islands 5. (Subfamily Chrysomelinae). J. Fac. Agr. Kyushu Univ., 13 (2): 264–286.

Kimoto, S., 1994. Leaf beetles (Chrysomelidae) of Japan, vol. Adult. 364pp. Tokai Univ. Press, Tokyo.

Medvedev, L. N. , 1968. The fauna of the leaf beetles of Magadan region and the North Habarovsk Territory. Pp. 62–87, in A. I. Kurentzov & Z. A. Konovalova eds. Fauna i ecologiya nasekomyh Dal'nego Vostoka, Ulagivostoka (in Russian).

Medvedev, L. N., 1982. Chrysomelidae of the Mongolian People's Republic, identification key. 302 pp. (in Russian).

Medvedev, L. N., 1992. Fam. Chrysomelidae. In Opredelitel' nasekomyh dalnego Vostoka SSSR 3 (2): 533–602, Nauka, St. Petersburg.

Mikhailov, Y. E. & M. Hayashi, 2000. Chrysomelidae of Sakhalin I. Ent. Rev. Japan, 55: 71–83.

Takizawa, H., 1976. Larvae of the genus *Gonioctena* Chevrolat (Coleoptera, Chrysomelidae); Descriptions of Japanese species and the implications of larval characters for the phylogeny. Kontyu, Tokyo, 44: 444–468.

Takizawa, H. 1989. Note on larvae of the subfamily Chrysomelinae (Coleoptera, Chrsyomelidae), part 1. Kanagawa-chuho, (90): 243–256.

Takizawa, H. 1994. Leaf beetles (Chrysomelidae) of Japan, vol. Larva. pp. 365–513. Tokai Univ. Press, Tokyo.

Takizawa, H. & M. Daccordi, 1998. Description of a new species of the genus *Gonioctena* Chevrolat from Japan (Coleoptera: Chrysomelidae). Entomol. Sci. 1: 105–108.

Warchalowski, A., 2003. Chrysomelidae, The leaf-beetles of Europe and the Mediterranean area, 600pp., 65 pls., Natura optima dux Foundation, Warszawa.